DOCUMENT RESUME

ED 396 670 IR 017 846

AUTHOR Mohl, Robert
TITLE Learning Where the Truth Lies: Use and Abuse of Multimedia.
PUB DATE 94
NOTE 8p.; In: Recreating the Revolution. Proceedings of the Annual National Educational Computing Conference (15th, Boston, Massachusetts, June 13-15, 1994); see IR 017 841.
PUB TYPE Viewpoints (Opinion/Position Papers, Essays, etc.) (120) -- Speeches/Conference Papers (150)

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Credibility; Design Preferences; Foreign Countries; *Instructional Design; *Multimedia Materials; Plagiarism; *Responsibility
IDENTIFIERS Information Value; Interactive Computer Systems; *Truth; *Visual Displays

ABSTRACT

The ease and glamour of multimedia seem to be shifting the emphasis of such products from content to style. This paper considers the need for multimedia designers, whether professionals or students, to take seriously their intellectual responsibility. The interactive and non-linear nature of multimedia makes it a powerful tool. Rather than using fancy visuals to mask mediocre or even misguided content, designers must guard against plagiarizing and manipulating information. They also must devise solutions for eliminating obstacles to truthful representations. (Author/BEW)

**********
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
**********

ED 396 670

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☐ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
Donella Ingham
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

**Special Session (M3-BRAA)**

# Learning Where the Truth Lies: Use and Abuse of Multimedia

*Robert Mobl*
*Floating Point Media*
*Peniche "Marie-José"*
*70, Boulevard du General Koenig*
*92200 Neuilly Sur Seine, FRANCE*
*(33-1) 47-47-52-92*
*Fax: (33-1) 46-37-10-30*
*mobl@applelink.apple.com*

**Key words: multimedia, learning, presentation, misrepresentation, manipulation**

## Abstract

This paper raises the issue of intellectual responsibility on the part of designers of multimedia products as well as student generated multimedia projects in the classroom. The ease and glamour of multimedia has shifted the emphasis somewhat from content to style. A number of problems and solutions are presented. Relevant issues in related media are discussed.

> How many lies did it require to make
> The portly truth you here present us with?
>
> — Robert Browning From "Mr. Sludge, 'The Medium'"

## It depends on your point of view

One of the favorite pictures which I shot in Nepal shows a boy on a wall silhouetted against the twilight sky next to the sloping roof of a Buddhist temple. The boy has his arms raised up, hands clasped together in a prayerful gesture. It is a beautiful composition and inspiring notion. However, a second shot taken with a telephoto lens reveals another story. In it you can see the string trailing from his hands and a tiny kite floating above. How important is that kite? It's hardly even visible in the wide shot. Is there anything wrong with using this image in a multimedia montage on religion and culture? For many in a hurry to communicate their message, nothing would be wrong with that. The image does the job, the point is made. Accuracy has become expendable. I think such thoughts, or rather, such lack of thought, is pushing multimedia in a dangerous direction. Designers and producers risk undermining their own credibility and the future of the field in general.

The issue is not unique to multimedia. Howard Becker asks, "Do photographs tell the truth?...If we are going to use photographs as evidence for social science assertions, we need to know whether they can be trusted as evidence, whether and how they 'tell the truth.' "* The truth has been abused in all media from photography to cinema to television. Ten years ago,

*Howard Becker; "Do Photographs Tell the Truth", *Afterimage*



IR017846

BEST COPY AVAILABLE

National Geographic digitally moved the Giza pyramid sideways in one of it's photos so that it would fit their cover format.** Re-enactments of stories on CBS news were passed off as the real thing. Recent "documentary" films like "JFK" and "Roger and Me" have played fast and loose with any attempt at objectivity. A colleague of mine won't go to see "JFK" because he is sure his visual memory will be infiltrated with untrue images which he will be unable to censor from this thinking.

In stumbling across a few examples of this sort and discussing the problems with others, I have discovered there is a large arena of issues—which many others have been wrestling with much longer than I. The issues arise not just in the media, but in fields as diverse as psychology and anthropology. I am not claiming any particular insight or expertise. Many of you may have thought more about this topic than I (in which case I will be most interested to hear your comments). For me, these notes are a work in progress, to get some ideas down on paper and start a dialog.

## The medium is the message

One of the first warning signs for me came shortly after the Apple's laser writer launched desk top publishing. Those lucky kids (early adopters we call them) who had access to the Macintosh on their Dad's desk discovered that they could produce a terrific looking school report. More importantly, they discovered that they could get an "A"—as long as it **looked** good. In fact, if it looked good, the ideas hardly mattered at all. They had learned a most important lesson—"The medium is the message." Judah Schwartz calls it the "celebration of impresario rather than the creator." When teachers finally caught on and started actually reading these reports, the kids ran spelling checkers and bought themselves a little more time. Next some discovered the power of an on-line thesaurus which can substitute wonderfully erudite variations at the click of a mouse, never mind that the kids may not have the slightest idea of the meaning.

Nowadays many teachers and some students acknowledge the fact that fancy format shouldn't make up for weak content. But the amazing thing is that nothing has changed that much. Everyone is still seduced by slick reports. Even when I see my rough my rough drafts coming out of the laser writer I can't help thinking how much better my writing is. By no means is this is to say that desk top publishing provides ad art tools simply to impress the reader. Page layout, graphics, fonts, etc. create a significantly more powerful medium for communication than plain text.* The right graphic composition can be just as important as a well turned phrase. Why aren't these skills being taught in school along with (or even in place of) cursive handwriting and spelling?

In any case, kids and the technology will always be one step ahead (of the teachers). Now kid's are having fun and getting A's with multimedia reports. Students are learning a lot about media and creative expression—which is fine except teachers often think they are still teaching history or geography.

## Multimediocrity **

Plagiarism is considered to be one of the worst sins in academics. Even with the ease of word processing, it is still unethical to copy another writer's words without acknowledging the source. But for some reason, cutting and pasting video clips and sound bites is the norm in multimedia reports. Why are students are expected to create their own original text, but when it comes to images they can only re-purpose or edit someone else's footage? Certainly there are differences in the media and in the technology, but careful thought should be given before we lower our standards or redefine the ethics of what constitutes creative composition and original thought.

The ease of casual cutting and pasting images gives rise to enormous temptation. If you can't find the right image (or if the right image is the wrong format or contrast) why not use another one to make the point (even more effectively). When students couldn't find a picture on the GTV videodisc to illustrate a battle in the War of 1812 they conveniently used one of a carriage crash in New York instead! Somehow it illustrated the feeling of destruction which the students wanted to convey. Nobody seemed to mind very much. Another group of students trying to illustrate a scene from the Greek myth of Cupid and Psyche used footage from the Visual Almanac to convey the emotion of anger. The clip was high speed photography of a Coke bottle being smashed with a hammer. To their credit they discussed whether their choice of visuals was legitimate and decided they were operating in the realm of creative expression. Unfortunately the emotion they elicited with such an anachronistic juxtaposition had more to do with laughter than anger. There are surely hundreds of better anecdotes about this academic variation of artistic license.

The issue is not new or unique to multimedia. We can, and should, learn where the limits of academic accuracy lie by examining related media. It is a problem that many filmmakers have wrestled with. Compare the examples just cited with the

**_National Geographic_, cover, Feb. 1982

*If the cobbler's son had shoes I might have found time to include illustrations in this paper

**term coined by Ted Nelson

standards of accuracy of Ken Burns. The Civil War documentary filmmaker, is always concerned with how far the filmmaker can go. Putting the voice of one soldier complaining about his morning coffee while showing the picture of another soldier holding a tin cup is the kind of equivalence that is legitimate. On the other hand, using the photo of a corpse at Antietam to illustrate the quotation from a soldier at Gettysburg is not, in Burn's view.[***] We may expect professionals to be more conscientious about academic standards than students, but notice our double standard with which we make a distinction between a student's written text and a student's multimedia images.

## Manipulating Information

One of the great benefits of multimedia is the interactivity which allows the user to dive into data and "manipulate information." With semantic irony, that double-barreled phrase takes on a negative connotation in another context not so far removed.

> "There's such a dangerous power to manipulate in film. Jean-Luc Godard, one of the fathers of new-wave films, was famous years ago for saying that film was the truth twenty-four times a second. But I think it can also lie twenty-four times a second." [*] (Of course Macintosh QuickTime movies can only lie ten to fifteen times a second.)

More ominous than transparent amateur efforts are the programs created with professional Hollywood high production values which disguise the extent to which the producer has manipulated the interpretation of the information. Two of the most effective techniques of the designer/producer are:

- the soundtrack. Voice, background music, 24-track mixers, etc. can elicit powerful emotional responses. Producers of TV commercials know how to bring the viewer to the edge of tears within a 30-second spot in the middle of a basketball game.
- fast cutting montages. The rapid juxtaposition of images in the best MTV tradition (almost subliminal) can become propaganda more than exposition.

Some multimedia producers have perfected both of these techniques in so-called "synapse sequences" which leave the viewer's mind gasping for breath as it races in vain to keep up with the viewer's emotional response.

The issue is not simple. It has as much to do with the difference in medium as with any moral position. "Film is not equipped to do what a book does, which is to attain profound levels of meaning and texture. But film has the power to reach profound levels of emotion.... I think that in allowing history to be defined and presented exclusively by the academy, we've bled it of its powerful emotional aspect....I believe film is uniquely equipped to transmit that kind of power. It can be our Homeric form...I don't want to oversell my medium, because it is so easy for it to fall into irresponsible hands that would promote our dangerous national addiction to images designed to manipulate us."[**] For Burns the dilemma is to find the middle ground between being too academic and abstract on the one hand and succumbing to the formulas of Madison Avenue.

## From the particular to the general

The problem cited above of using images to support writing is not easily overcome. Even if the multimedia author is conscientious about researching "accurate" pictures, another problem remains when the particular case is meant to represent a general trend. When unemployment rises one tenth of a percent, TV news shows a graph and then brings its cameras into the living room of Joe Smith to more effectively convey to the viewer what it can mean to lose your job. The use of such case studies is a responsible and important part of media. Generalities can leave the viewer detached with only a superficial understanding. Images capture the viewer's imagination and provide a richer setting in which ideas can be visualized. While sentences or statistics can be abstract and general; pictures are always particular. The average family has 2.1 children, yet no home has such a portrait sitting on the mantle. Joe Smith may share many of the experiences of the newly unemployed, but they are not trying to support Mildred, his live-in mother-in-law.

Howard Becker points out that all photographs are about particular situations, but that they are inevitably interpreted as representing general context. If generalizations were not implied, viewers would be much less interested in the pictures. For

---

[***] Ken Burns; "The Arrogance of the Present is to Forget the Intelligence of the Past, *American Heritage*

[*] Ibid.

[**] Ibid.

example, Owen's photography book is called Suburbia, not "Livermore" because if it needs to make a statement about American life in general, not about a particular town in California.*

What are the criteria for choosing representative images? How does the viewer extract those aspects which have general relevance and dismiss those which are unique? Anthropologists and some psychologists whose main research methodology is the case study may have some answers. Multimedia may also provide its own new solutions as we shall see later.

## Seeing is Believing—and vice versa

We take it for granted that seeing is believing. It is both the power and the danger of visual learning. We have all learned to believe that the earth rotates on its axis, but everyone of us, including astronomers, still sees the sun sinking into the ocean at sunset. We should be saying "earth rise."

Here's a little verse which sums it all up—with thanks to Kathy Wilson and apologies to Michael Jackson:

- Who Knows Where the Truth Lies?
- The day is 24 hours long,
- The teacher is never wrong.
- When we see the sun rise,
- We forget the truth lies.
- It's day, it's night.
- It's black, it's white.

Learning how different frames of reference affect what you see is one of the objectives of "Playground Physics" the Visual Almanac. When viewers watch the visual illusion of a ball rolling across a spinning merry-go-round they "see" the path of the ball as a pronounced curve outward. Some with enough background in physics know better—"It's actually traveling in a straight line." On-line measurement shows that neither is exactly right. The path curves slightly inward (because of friction).

One of the compelling advantages of the Visual Almanac videodisc is that it presents a real-world view which can draw students in, motivate their learning and provide a rich visual scene upon which they can build and apply conceptual frameworks. One of the disadvantages of videodiscs is that the content cannot be readily manipulated. You cannot speed up the rotation of the merry-go-round or experiment with changing the weight of the ball, etc.

However, as TV goes digital and computers "go video" it will be easier to simulate these variations by compositing the elements together on the fly. One of the prices we will pay for this progress is the credibility of the image. It will become harder and harder to distinguish between footage which has been recorded and that which has been synthesized. It will all seem equally real. Voyager mission fly-bys of the planets have yielded spectacular footage which JPL has used to create low level fly-overs of 3-D terrain maps. The computer will increasingly follow in the footsteps of the world of cinematic special effects. It remains to be seen whether synthesized computer simulations will be enhanced by real-world look and feel or whether they will further undermine our faith in believing what we see.

In any case there is a new phrase afoot. "I'll see it when I believe it."* That's one possible explanation for the verdict in the Rodney King videotaped beating trial. It also may explain public reaction to the Clarence Thomas confirmation hearings. The public was profoundly divided between those who thought Thomas was lying and those who thought Anita Hill was lying. One might expect to find some correlation by gender, race or age. There was an overwhelming correlation, but it was not by any of these categories; it was by political affiliation. Among the public at large, registered Republicans believed Thomas, Democrats believed Hill. As every magician and 3-card monte con artist knows people will see what they believe (or what you can trick them into believing.)

Some interesting discoveries about what people see vs. what they think they see were made as long ago as 1920 when Lev Kuleshov conducted an experiment in the cut-away. His group "took three identical shots of the well-known ... actor Moszhukin and inter-cut them with shots of a plate of soup, a woman in a coffin and a little girl.... Audiences exclaimed at

*Howard Becker, "Do Photographs Tell the Truth", *Aferimage*

*Robert Ornstein; *Pyschology of Consciousness*



BEST COPY AVAILABLE

Moszhukin's subtle and affective ability to convey such varied emotions: hunger, sadness, affection."** The actor's "enormous talent" in using the subtlest facial expressions to reveal such different reactions was completely invented by the audience who projected their own feelings. The juxtaposition of sound can be similarly effective. Simply changing the sound can redirect the viewer's focus and interpretation of a picture.

## Realer than real

In the early days before we called it multimedia, I was testing users with the Aspen Movie Map (the surrogate travel videodisc system we developed at MIT). The subjects were people who would soon be visiting Aspen for the first time. In her explorations of the town one woman headed north on Mill Street. The footage ended after a few hundred yards as the road headed out of town. Due to a bug in this alpha version of the system, she couldn't even turn around. The program had to be restarted. She ended up spending about an hour exploring the virtual environment of Aspen and had learned to avoid heading out of town on Mill. When she visited a week later, she was instantly familiar with the town and very confident finding her way around. At one point she was invited to visit a friend's home on Red Mountain. The friend gave her instructions over the phone. "Turn left on Mill Street and drive north for 5 miles..."

"Well, ok.... But I don't think you can do that!" she responded dubiously.

There are hundreds of examples of the power of multimedia. Media can be more powerful and memorable than reality. A number of reasons come to mind:

- Multimedia is interactive. So is reality. But in many cases the computer version has been customized to encourage fast, easy iterations and variations which are often cumbersome to test in reality. The user often can form and test hypotheses within much shorter time frames (or attention spans).
- It's repeatable. Digital media is infinitely repeatable. Reality never repeats exactly. In a crucial close call or spectacular play in a football game, I remember the slow-motion replay from multiple angles much better than what I saw with my own eyes in the stadium.
- It can be authored, filtered, choreographed and edited for specific purposes in a way that reality can't. There is no background music in real life, no scriptwriter or director assembling the plot in advance. We only do it retroactively (unless we spell Director with a capital D.)

## White Lies

The weatherman stands in front of a blue background gesturing at empty space; the viewing audience sees clouds racing across the Europe and high temperature marks superimposed upon a map of England. The weatherman views and adjusts his positioning with the aid of an off screen monitor carefully placed so he can pretend to be looking at something else. In the beginning monitors were off to each side to foster the pretense that he was looking across the map, but few were fooled. Many stations also used to wipe from one meteorological map to another while the weatherman pretended to slide a vertical mullion across his virtual stage. That definitely fooled nobody. Today the pretense has vanished. The monitor is placed next to the studio camera, so the weatherman can look directly at the audience while he gestures as if he had eyes in the back of his head. The maps switch without fanfare and the commentary makes the transition in mid-sentence.

The format has become the standard way conveying information in the most understandable way. The "tricks" are so widely known that you use the example of the weatherman to explain the technique of chroma key to someone rather than vice versa.

In this case the truth lies, but it is a little white lie which everyone accepts. It does no harm precisely because it has become a convention and because the illusion is in form, not content. For contrast consider infra-red satellite photos of temperature gradients. These look for all intent and purpose like radar views of cloud patterns. While there is a high correlation between the two, they really represent different data. When one is misrepresented as the other, the misinformation is less benign.

## Learning because the truth lies

It may be tempting to assume learning is best served by access to the whole truth. Paradoxically teachers often find themselves leaving out parts of the picture so not to overwhelm beginning students with unimportant complexity. Imagine if you couldn't teach basic Newtonian physics without resorting to relativity. Many lies are told in the name of simplification.

**James Monaco; *How to Read a Film*

"Don't worry about that now, you'll get the full story next year." "This is the totally elastic collision between two bodies on a frictionless table."

Designers often simplify the underlying model not just because it is too complicated to teach to the student, but because it is too hard for them to figure out how to teach it to the computer.

Multimedia educators like Sam Gibbon set incredibly high standards for being honest with their student audience. They are as accurate and complete as they can be and add disclaimers whenever they have had to leave out or fudge any aspect. Yet, after being so conscientious and responsible they are discouraged to find that students don't want disclaimers. It lessens their motivation. Just as in politics and love, a simplistic lie is sometimes more desirable to hear than the messy truth.

One problem of course is who decides what to leave out; who decides which model is right for the user?

## The Problem is the Solution

It would be easy to go on and on about the dilemmas faced by designers and users of multimedia products. However, if I ever want to wrap up these notes it's time to think about how some of these problems can be resolved. As with many technologies parts of the problem can be reformulated to become part of the solution. Here are a few of cases in point:

### Transparency

One of the goals which multimedia designers take the greatest pride in is the transparent interface. Everything should be so clear, intuitive and obvious, the user doesn't even notice the hand of the designer; he or she is directly engaged with the content. While this is admirable (not to mention greatly challenging), from a certain point of view it can lead in a unwise direction. Most multimedia applications (especially simulations) are based upon some underlying model derived from the real world. That model should be visible to the user; it should not be the part of the interface which is so well-designed that the user never sees it. If I am looking through a single lens reflex camera, the technology is transparent—I am directly engaged with the subject. However, if the lens has a polarizing filter on, I need to know that it is there and how using it manipulates the image in front of me.

When the designer makes the underlying model explicit to the user two important things happen. First, the designer is off the hook. He or she has taken the responsibility for being honest with the users. Limitations, constraints, simplifications are acknowledged. Hopefully the result will be less misinterpretation and misuse. Second, users are learning not just about the subject matter but also about modeling and representing the content. This puts a powerful tool in their hands for constructing their own models both internally and on the computer.

### Multiplicity

As noted earlier case studies pose a problem for linear visual media. They are extremely helpful because they are so literal, but that very specificity makes generalization risky. Since multimedia is interactive and non-linear it provides a refreshing alternative. Tens (or hundreds) of cases may be made available those users seeking the fuller story. They are not just stuck with Joe Smith and his family; they can, if they want, draw more complex conclusions from investigating a wider sample (of an unemployed single mother, an auto plant closing in Michigan, etc., etc.) To be sure, this doesn't completely solve the problem, because each of those other cases is specific as well. Who chose them? Is each of them representative of a general situation? Nevertheless, it allows users who want more to get a **better** handle on the content—and to conduct their own investigation.

Multimedia is full of multiplicity—multiple representations, multiple points of view, multiple levels, multiple purposes, etc. As a designer it is probably not a good idea to take the notion that you can include **everything** for the user. There will generally have to be editorial filtering. In fact, some of the most successful multimedia products are those in which the author's views drive the design. In some cases, the key to good design will depend on providing the balance between authorship (on the part of content expert) and research (on the part of the user).

### Sound bite learning

Another "solution" that multimedia may provide is somewhat discouraging. In this fast-paced age of the sound bite, the ten second TV ad and the USA TODAY picto-graph, messages are becoming incredibly compressed. It is not because we have a short attention span, but because our attention is being fractured by a multitude of signals competing for mind share. We simply don't have time to dwell on any issue for very long.

Believing that the multimedia author/producer has a responsibility to be honest, accurate and open might make me old-fashioned. The younger generation may be consuming media at a rate that doesn't allow time for nuance, depth or reflection. While we may bemoan this development, it may becoming a fact of life for those who need to stay abreast of an increasing flow of information. If so, then some of those very examples which sacrifice truth for the sake of a more powerful message



BEST COPY AVAILABLE

may be positioning multimedia for the future which our society is building for itself—whether we like it or not. It is possible that those who subscribe to this expediency will learn more about a greater range things that they need to know than those who explore a narrower domain more deeply.

### Critical Review

As noted earlier, most of the issues are not new or unique to multimedia. Print, TV, cinema, etc. all have established traditions about what is kosher and what isn't. Literary criticism, film criticism, etc. are useful and necessary in the development of their respective media. It is time for multimedia to establish its own conventions, its own rules. It is time for critical thinking and critical review. We need multimedia critics. They should not just to look at interface, interaction and production values but also at the representation of the content and the underlying models upon which products are built.

I am interested in hearing from others about the issues presented in this paper, especially with regard to examples encountered by students and teachers in classrooms. Please send any comments or examples which you think may be of interest in furthering this discussion to me at the above listed address, fax, or E-mail.

## References


Becker, Howard; "Do Photographs Tell the Truth?" *Afterimage*, February 1978

Burns, Ken; "The Great Arrogance of the Present Is to Forget the Intelligence of the Past" *American Heritage* , September/October 1990

Brand, Stewart, et al; "Digital Retouching" *Whole Earth Review*, July 1985

Monaco, James; *How to Read a Film*, Oxford University Press, 1977

Tufte, Edward; *The Visual Display of Quantitative Information*, Graphics Press 1983



Conversations at various times with and thanks to:

Charles Kerns, Sam Gibbon, Kathy Wilson, Judah Schwartz, Steve Gano, Nancy Hechinger,

Bob Campbell, Pat Hanlon, Kristina Woolsey, Mike Naimark, Abbe Don, Scott Fisher